AMENDMENTS TO THE DRAWINGS

The attached sheet(s) of drawings includes changes to Figure 6. Figure 6 is amended to indicate a prior art system, as suggested by the office action.

Attachment: Replacement sheet

Annotated sheet showing changes

REMARKS

Claims 1-29 are pending and at issue. Reconsideration of the pending claims is requested in view of the remarks below.

§ 112 Rejection

Applicants respectfully traverse the rejection of the pending claims under § 112, second paragraph, as being indefinite for failing to point out and distinctly claim the subject matter. The Office action specifically objects to the claims for being too narrative and replete with grammatical and idiomatic errors. Applicants have amended the claims accordingly to correct the grammatical and idiomatic errors. Applicants submit that the claims are now in a condition to overcome the § 112 rejection.

Claims 18-23 are further rejected because of the alternative language used. Claims 18-23 are amended to remove this alternative language. Claims 19-23 are further rejected because of the ambiguous multiple dependent claim combinations. Claims 19-23 are amended to clarify the multiple dependent combinations.

§ 101 Rejection

Claims 1-29 are rejected under § 101 as directed to non-statutory subject matter. The office action asserts that the claims do not recite a tangible result because the claims do not recite an application of the claimed result matrix. Accordingly, claims 1-29 are amended to clarify the use of the matrix. Specifically, claims 1-29 are amended to recite using the matrix system to evaluate coefficients of a second column matrix where the coefficients of said second column matrix correspond to values of a physical quantity representing a secondary wave emitted by an obstacle in said region of three-dimensional space. Thus, as amended, the pending claims now recite that the second matrix provides values corresponding to a physical quantity associated with a secondary wave emitted by an obstacle in three dimensional space.

Generally, the claimed method calculates the value of a physical quantity anywhere in three-dimensional space. Such a physical quantity can be a scalar quantity (e.g., a pressure, an electric potential, a magnetic potential, etc.) or a vector quantity (e.g., an electric field, magnetic field, etc.). The recited meshing makes it possible to obtain the calculation bubbles of figures 1A and 2A, called "hemispheres" in claim 1. Each hemisphere may include at least

one radiating source. The points of contact of the hemispheres with the obstacle surface to be meshed are recited as "predetermined points" (e.g., Pi, see figure 1B).

The matrix system is used a first time to determine the coefficients of a first column matrix. These coefficients correspond to the values of the sources associated with the hemispheres. More particularly, on each of the predetermined points derived from the meshing of step a), the value of the physical quantity is known (see, e.g., the application of boundary conditions on page 22, line 26 of the specification). Thus, in this step c), the interaction matrix is applied to the predetermined points. The known values of the physical quantity on the predetermined points is ranked in the second column matrix of claim 1 and the second column matrix is multiplied by the inverse of the interaction matrix (calculated for the predetermined points), to obtain the coefficients of the first column matrix.

Once the coefficients of the first column matrix are obtained, the matrix can be used at least a second time for calculating the values of the physical quantity in any chosen region of three dimensional space. Thus, in step d), the interaction matrix is calculated for this chosen region and its multiplication to the first column matrix gives the coefficients of the second column matrix, e.g., the values of the physical quantity in the chosen region.

Because the claims now recite that the second resulting matrix is a solution that provides the physical quantities of the chosen region of three dimensional space, the claims now recite a positive application of the resulting matrix. Therefore, the pending claims are patentable in view of § 101.

§103 Rejections

Applicants respectfully traverse the rejection of the pending claims as obvious in view of Placko et al. (SPIE Proceedings Vol. 4335, July 2001). Each of the pending claims recite evaluating a physical quantity associated with an interaction between a wave and an obstacle. Placko et al. does not disclose an obstacle receiving an incident wave. Instead, Placko et al. discloses calculating a physical quantity related to a wave emanating from a radiating element (e.g., an active sensor such as the magnet of Fig. 2) without any interaction of the wave with any obstacle. Placko et al. clearly does not describe reflection or transmission of the incident wave from the active element, nor the does Placko et al. describe orientation of a hemisphere (see, e.g., Figure 5), in any manner. Therefore, Placko et al. cannot render any of the pending claims obvious.

Applicants further traverse the rejection of the pending claims as obvious in view of Placko et al. Each of the claims is amended to recite that the surface of the obstacle corresponds to an interface between a first medium and a second medium, a main wave propagating in said first medium, and a hemisphere oriented inwardly for a propagation of said secondary wave in said second medium, and outwardly for a propagation of said secondary wave in said first medium.

Generally, the claimed method considers the obstacle as an interface between two media, e.g. as a dioptre, and orients the claimed hemispheres, representing the surface samples, inwardly for a transmission of the incident wave in a second medium (as illustrated in Figure 4B), and outwardly for a reflection of the incident wave in the same first medium (as illustrated in Figure 4A). The terms "inwards" and "outwards" are related to the incoming incident wave (the "main wave" as recited in claim 1) with respect to the obstacle (see Figures 4A and 4B).

This orientation makes it possible to model any heterostructure (by combining unit obstacles one after the other) to simulate the reaction of such a heterostructure to an incident wave and to calculate its coefficient of transmission or reflection.

Placko et al. fails to disclose or suggest the use of a model hemisphere in any of its calculations, much less a hemisphere oriented inwardly for a transmission of the incident wave in a second medium (as illustrated in Figure 4B), and outwardly for a reflection of the incident wave in the same first medium. Therefore, Packo et al. cannot render any of the pending claims obvious.

CONCLUSION

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Respectfully submitted,

MARSHALL, GERSTEIN & BORUN LLP
6300 Sears Tower
233 South Wacker Drive
Chicago, Illinois 60606
312-474-6300

By: ____________________

Oliver T. Ong
Registration No. 58,456
Attorney for Applicants

September 19, 2006
Attachments

REPLACEMENT SHEET

ANNOTATED SHEET SHOWING CHANGES

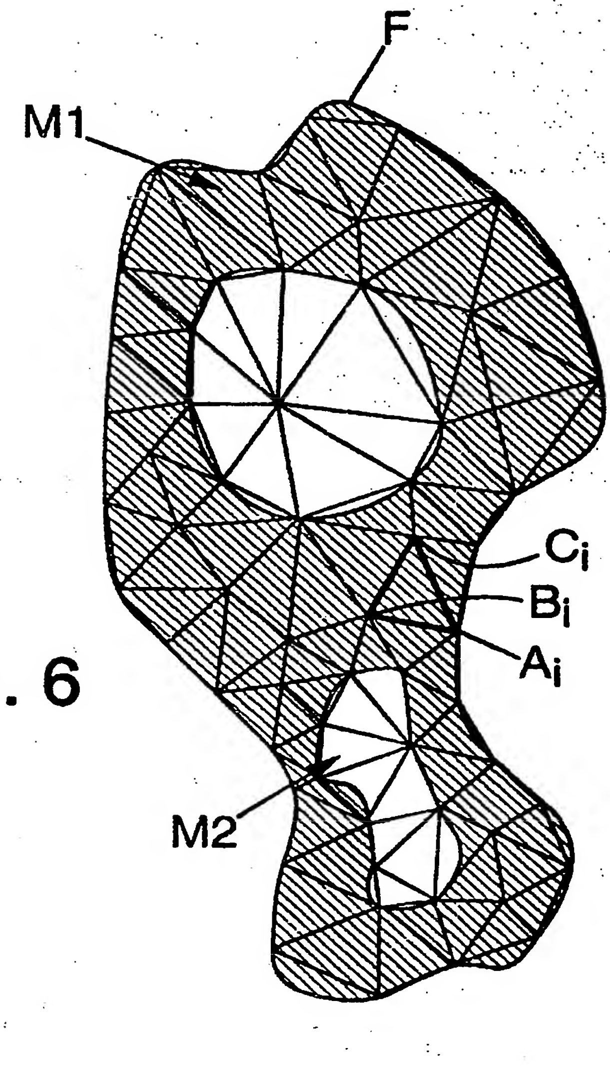

FIG. 6

PRIOR ART